

## ATMOSPHERIC DEPOSITS OF DUST AND TRACE METALS

## SOILS 1

Trace metals are deposited on the soil as sedimentary dust and accumulate there, usually a few hundred metres from their point of emission. These deposits are monitored via a network of 126 gauges located close to 31 industry groups with high emissions (steel industries, cement works, quarries, incinerators, etc.), located mainly along the Sambre-et-Meuse line.

The results of measurements from this network<sup>1</sup> should be interpreted with caution as they reflect localised impacts and are not representative of the overall level of contamination by dust deposition at the regional level. Furthermore, the impact of each group of industries can only be assessed through a detailed analysis which takes into account, *inter alia*, the nature of the discharges, distance from the source, climatic conditions and the sensitivity of the receiving environments.

## Deposits down overall

Overall, deposits of dust, Cu, Zn, Ni, Cr, Pb and Cd measured in 2014 near the most polluting infrastructures were lower than the existing guideline values<sup>2</sup> (values below which health effects and/or environmental effects are minimised). Between 2001 and 2014, they decreased from 33 to 76% (depending on the type of deposit), this general downward trend may mask significant local variations for some pollutants as regards certain industrial groups (e.g. Ni or Cd in Ath, Cr in Ath or Farciennes). For some trace metals, the maximum deposit levels observed in 2014 were sometimes significantly higher than the guideline values. This was the case in the Ath region for Ni (chemical industry) and to a lesser extent for Cd (Cd processing plant).

The decrease in dust and trace metal deposits near given companies is mainly due to a reduction in emissions at source, linked in particular to the reduction or phasing-out of certain activities, the application of new operating conditions (in the carrier sector and IPPC/IED establishments, for example) and the development of new technologies (more efficient

filters, new industrial processes, replacement of certain compounds by other less polluting ones, etc.).

## Awaiting appropriate regulation

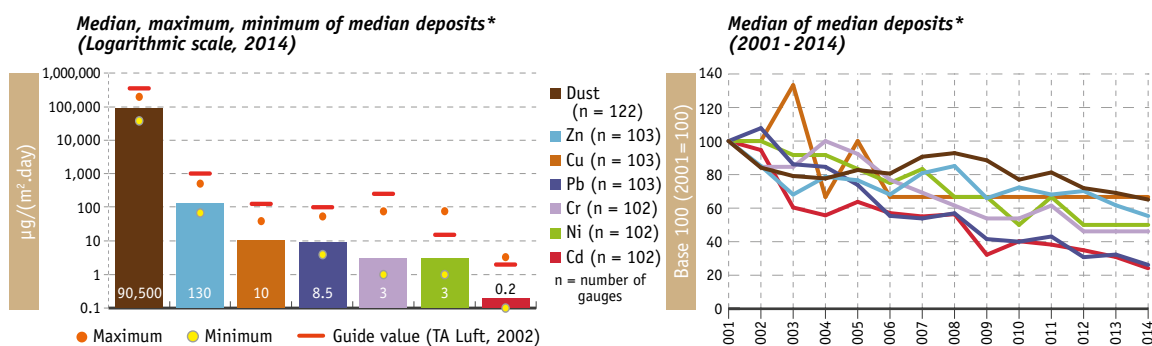
At present, there are no European regulations imposing limit values for atmospheric deposits of dust and trace metals. Moreover, the German guideline values used by default in Wallonia are probably not transposable as such, since the impact of deposits depends on the nature of the soils and the type of vegetation found. Consequently, as indicated in Directive 2004/107/EC, further studies would be necessary to assess the potential impacts of these deposits on the local environment and human health<sup>3</sup>.

## A mapping of historical deposits

The impact on the quality of soils of nearby atmospheric deposits associated with former industrial activities has been the subject of a study that has made it possible to refine the maps of expected concentrations of various pollutants in Walloon soils<sup>4</sup>. In particular, this study revealed important historical deposits of Cd, Pb, Sb and Zn on the soils of the Meuse and Vesdre valleys (non-ferrous metallurgy).

<sup>[1]</sup> "Sedimentary dust" network of the ISSeP (results available at <http://airquality.issep.be>) | <sup>[2]</sup> German guide values (TA Luft, 2002) | <sup>[3]</sup> Such studies are carried out when a site affected by TM deposits within the scope of the "Soil" decree of 05/12/2008; → SOILS 5 | <sup>[4]</sup> POLLUSOL 2 study ([www.spaque.be](http://www.spaque.be))

Fig. SOILS 1-1 Atmospheric deposits of dust and trace metals near industrial infrastructures in Wallonia



\* For a given pollutant and a given year, each group of industries monitored is characterised by the median of the data measured at the various gauges composing this group. The median, maximum and minimum are presented for all groups.